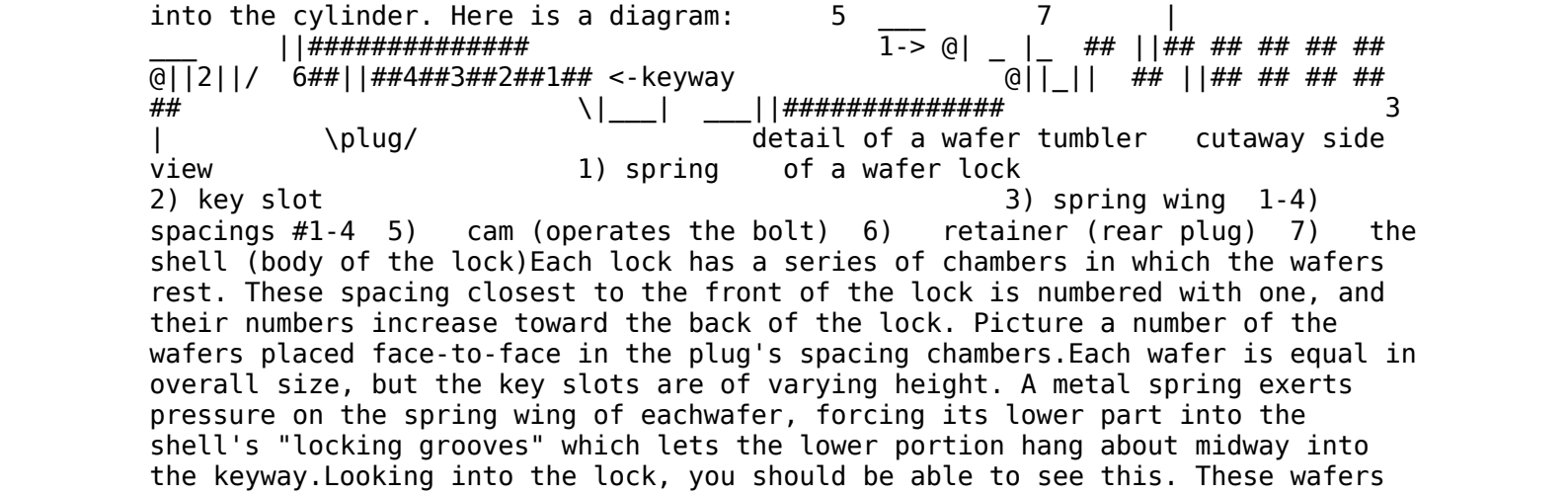
The Wafer Tumbler LockThe wafer tumbler lock was developed as a low-cost lock that offered a reasonable degree of security to the owner. These locks are make up over one-fourth of all the locks in the world. The outside of the lock resembles the pin tumbler lock (yet to be discussed), but uses amuch simpler mechanism. Wafer keyways usually have simple side ward indentions. The key is usually shorter than that of otherlocks, but equally broad. It may be cut on one or both sides. A two sided wafer lock is often called a "double wafer." The lock consists offour main parts. The plug housing, which contains the wafers and springs, the shell, the cam (locking bolt), and the retainer. The wafersare sometimes referred to as "discs" because their top and bottom are rounded to fit into the cylinder. Here is a diagram:



detail of a wafer tumbler cutaway side view

1) spring of a wafer lock

2) key slot 3) spring wing 1-4) spacings #1-4 5) cam (operates the bolt) 6) retainer (rear plug) 7) the shell (body of the lock)Each lock has a series of chambers in which the wafers rest. These spacing closest to the front of the lock is numbered with one, and their numbers increase toward the back of the lock. Picture a number of the wafers placed face-to-face in the plug's spacing chambers.Each wafer is equal in overall size, but the key slots are of varying height. A metal spring exerts pressure on the spring wing of eachwafer, forcing its lower part into the shell's "locking grooves" which lets the lower portion hang about midway into the keyway.Looking into the lock, you should be able to see this. These wafers act to hold the plug and shell together, preventing the lock fromturning.When the correct key is inserted, it goes through the key slots on each wafer, raising the wafers out of the locking groove. The key musthave the appropriate depth of cut in each position to raise the wafer the correct amount. The depth of the key's cut (and the length ofthe wafer's key slot) is any one of five different depths. The shorter the top edge of the wafer's key slot, the lower the key cut depthvalue. For instance the number 1 slot (the slot that is the largest) would require the shallowest cut in the key. Normally lockmanufacturers place a number four or five wafer near the keyhole to block the view of the back wafers. Also note that the same type ofwafer may appear several times in the same lock.Above some brands of wafer tumbler lock you will see a small hole. When the lock has been unlocked, you can remove the entire lockplug by inserting a piece of stiff wire into this hole and depressing the retainer. Though nowhere near as secure as the pin tumbler lock,the wafer tumbler is a very popular, low cost lock. The lock is normally found on cheaper cabinets and desks, some padlocks, someautomobile locks, locking handles, and trailer doors. Where more security is desired, the double wafer type is used, providing wafers onthe top and bottom of the keyway. PickingThough harder to pick then the warded lock, the wafer lock is still easy to circumvent. This is an excellent lock to practice on becausethe techniques required to pick it are applicable to the pin tumbler lock as well. Like the lever lock, picking the wafer tumbler lockrequires use of a tension wrench and a pick. A variety of the different picks can be used including the rake, the hook, the half-diamond,and the half-round pick. Selection depends on the size of the lock, the distance between each wafer, and personal preference. RakingOne of the most common methods of picking the wafer tumbler lock is by raking. To rake the lock, insert the tension wrench is insertedjust inside the keyway, stopping short of the first wafer, and flush with the bottom of the keyway. Apply moderate tension to thewrench. If you apply too much tension the wafers will bind and not be able to move into alignment. Once you have the tension wrenchin place, insert either the rake or half-round pick into the keyway. Don't worry about feeling the tumblers, instead concentrate onapplying uniform pressure to them as you move the rake in and out of the keyway in a scrubbing motion. This scrubbing motionshould cause the wafers to lift into alignment as they are thrown up and down in their spacings. This method is usually quite effectiveon most wafer locks, and should always be tried first. Manipulating Individual WafersIf the lock does not respond to

raking, you can try using the half-diamond pick to each wafer into alignment one-by-one. Whilemaintaining light but consistent pressure with the tension wrench, use the pick to lift each wafer into alignment at the shear line, starting from the backmost tumbler. Once it reaches the proper alignment, you should feel or hear a slight "click" and the plug will turnever so slightly, relieving a bit of pressure on the wrench. Continue one-by-one, working outward, until each tumbler has been alignedand the lock opens. Vibration PickingOften you can use a technique called vibration picking to open a wafer tumbler lock. This uses a tool known as a "snapper" pick or a"lockpick gun". [These are described in the Lockpicking Tools section of this article] To use the snapper pick maintain a light tensionwith the wrench and insert the tip of the pick into the keyway, just touching the bottom of the tumblers. Then use the thumb, which rests along the top edge of the pick to depress the top loop. Let the thumb slide off the compressed part of the pick, permitting it to snapback. It will then strike a light blow to the tumblers, popping them up until they are held in place at the shear line. Repeated snaps,while maintaining tension with the wrench, usually results in aligning all the tumblers, and thus opening the lock. The lockpick gunworks automatically, with a trigger device that "snaps" its wire pick up in the keyway. Picking Double Wafer LocksDouble Wafer locks are picked the same way as single wafer locks, but there two sides to the story. Not only must you align all the topwafers, but the bottom ones as well. You can purchase special designed tension wrenches with will let you then use a ball pick to pick both sets of wafers. Alternatively you can use a standard tension wrench in the center of the keyway, using a half diamond pick. Onceyou have picked one set, simply reverse the pick and pick the other. It may take a few tries before you are able to hold all the wafers inplace.